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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,521	07/12/2001	Mingming Zhang	M-8833 US	3490

24251 7590 10/20/2004

SKJERVEN MORRILL LLP
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EXAMINER	
WILLIAMS, LAWRENCE B	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/905,521	ZHANG ET AL.	
	Examiner	Art Unit	
	Lawrence B Williams	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-9 and 15* is/are allowed.

6)☒ Claim(s) *10-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

a.) Applicant has failed to fill in proper application numbers for related concurrently filed US. Patent applications under "Cross-Reference To Related Application".

Appropriate correction is required.

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claim 1 is objected to because of the following informalities:

a.) Claim 1 recites the limitation "said decoder" in line 1. There is insufficient antecedent basis for this limitation in the claim. Examiner suggests applicant replace with "said decoder circuit".

b.) Claim 1 recites the limitation "said first terminal" in line 1 of page 32. There is insufficient antecedent basis for this limitation in the claim. Examiner suggests applicant replace with "said first input terminal".

c.) Claim 1 recites the limitation "said second terminal" in line 3 of page 32. There is insufficient antecedent basis for this limitation in the claim. Examiner suggests applicant replace with "said second input terminal".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 10-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 10-15 all cite "the method of" and depend upon claim 7, which claims a "device" or "apparatus".

Allowable Subject Matter

6. Claims 1-9, and 15 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses an index generation circuit and method for use in a turbo decoder. The closest prior art is applicant's co-pending application 09/905, 568. A thorough and exhaustive search of prior art records has failed to teach a decoder circuit comprising; "a first inverter coupled to receive said second argument value x_2 for inverting the databits of said second argument value x_2; an adder coupled to receive said first argument value x_1, said inverted second argument value x_2, and a value of one, said adder providing an output value equaling the difference between said first argument value x_1 and said second argument value x_2; a second inverter coupled to receive said output value of said adder for inverting the data bits of said output value of said adder; and a multiplexer having a first input terminal coupled to receive said output value of said adder, a second input terminal coupled to receive said inverted output value

of said adder from said second inverter, and a control terminal coupled to receive a control bit;" along with the remaining limitations of claim 1. Nor does the prior art teach a method in a decoder comprising; "adding said first argument value x_1, said inverted second argument value x_2, and a value of 1, thereby generating the difference of said first argument value x_1 and said second argument value x_2; inverting databits of said difference of said first argument value x_1 and said second argument value x_2; selecting said difference of said first argument value x_1 and said second argument value x_2 as said index value z when said difference is a positive value; and selecting said inverted difference of said first argument value x_1 and said second argument value x_2 when said difference is a positive value" along with the remaining limitations of claim 8.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Yuan et al. discloses in US 2003/0056167 A1 a Look-Up Table Addressing Scheme.

b.) Yuan discloses in US Patent 2003/0014711 A1 an Implementation of a Turbo Decoder.

c.) Kim et al. discloses in US Patent 6,748,032 B1 an Apparatus and Method for Adaptive Map Channel Decoding In Radio Telecommunication System.

d.) Yakhnich et al. discloses in US Patent 6,731,700 B1 a Soft Decision Output Generator.

e.) Sadjadpour discloses in US Patent 6,226,773 B1 a Memory-Minimized Architecture For Implementing Map Decoding.

f.) Divsalar et al. discloses in US Patent 6,023,783 Hybrid Concatenated Codes and Iterative Decoding.

g.) Desai et al. discloses in US Patent 6,760,390 B1 a Log-Map Metric Calculation Using The AVG* Kernel.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
October 16, 2004

Amanda Le

AMANDA T. LE
PRIMARY EXAMINER

U.S. Department of Commerce, Patent and Trademark Office	Atty Docket No.	Serial No.
	M-8833 US	Unknown
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Applicant(s)	
(Use several sheets if necessary)	Mingming Zhang, et al	
	Filing Date	Group
	July 12, 2001	Unknown

U.S. Patent Documents

*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
[signature]	AA	6,014,411	11 Jan. 2000	Wang	375	259	29 Oct 1998

Foreign Patent Documents

							Translation	
		Document	Date	Country	Class	Subclass	Yes	No

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

[signature]	AB	Valenti, M.C., "An Introduction to Turbo Codes," Unpublished Report, May 1996, available at http://www.cs.wvu.edu/~mvalenti/pubs.html, 7pp.
[signature]	AC	Robertson, P., et al., "A Comparison of Optimal and Sub-Optimal MAP Decoding Algorithms Operating in the Log Domain," IEEE Int'l. Conf. on Communications (Seattle, WA), June 1995, pp. 1009-1013.
[signature]	AD	Berrou, C., et al., "Near Shannon Limit Error - Correcting Coding and Decoding: Turbo Codes (1)," IEEE Int'l. Conf. on Comm. May 1993, pp. 1064-1070.
[signature]	AE	Robertson, P., et al., "Optimal and Sub-Optimal Maximum a Posteriori Algorithms Suitable for Turbo Decoding," European Transactions on Telecommunications, Vol. 8, No. 2, Mar.-Apr. 1997, pp. 119-125.
[signature]	AF	Berrou, C., et al., "Near Optimum Error Correcting Coding and Decoding: Turbo-Codes," IEEE Transactions on Communications, Vol. 44, No. 10, Oct. 1996, pp. 1261-1271.
[signature]	AG	Pauluzzi, D.R., et al., "A Comparison of SNR Estimation Techniques in the AWGN Channel," IEEE Transactions on Communications, Vol. 48, No. 10, October 2000, pp. 1681-1691.
[signature]	AH	3GPP Radio Access Network Technical Specification, 3G TS 25 212 V3.0.0, "Multiplexing and Channel Coding (FDD)," 1999, 20 pp.
[signature]	AI	TR45 - Physical Layer Standard for cdma2000 Spread Spectrum Systems, TIA/EIA/IS-2000.2, 3-73/3-84.
[signature]	AJ	http://www-sc.enst-bretagne.fr/turbo/historic.html "A brief historic of turbo codes:", 4/7/200.
[signature]	AK	Hess, J., "Implementation of a Turbo Decoder on a Configurable Computing Platform," Thesis submitted to Virginia Polytechnic Institute and State University, Sept. 1999, 74 pp.

Examiner [signature] Date Considered 10/8/04

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

Express Mail Label No. EL 710 209 795 US

Notice of References Cited	Application/Control No. 09/905,521	Applicant(s)/Patent Under Reexamination ZHANG ET AL.	
	Examiner Lawrence B Williams	Art Unit 2634	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-2003/0014711 A1	01-2003	Yuan, Warm Shaw	714/786
	B	US-6,731,700 B1	05-2004	Yakhnich et al.	375/341
	C	US-6,226,773 B1	05-2001	Sadjadpour, Hamid R.	714/794
	D	US-6,748,032 B1	06-2004	Kim et al.	375/340
	E	US-6,023,783	02-2000	Divsalar et al.	714/792
	F	US-6,760,390 B1	07-2004	Desai et al.	375/341
	G	US-2003/0056167 A1	03-2003	Yuan et al.	714/759
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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